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10/707,908	01/23/2004	Jason M. Benz	BUR920030121US1	1907
29154 7590 04/20/2007 FREDERICK W. GIBB, III Gibb & Rahman, LLC 2568-A RIVA ROAD SUITE 304 ANNAPOLIS, MD 21401			EXAMINER RUGGLES, JOHN S	
			ART UNIT 1756	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.		Applicant(s)	
	10/707,908		BENZ, JASON M.	
	Examiner		Art Unit	
	John Ruggles		1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,8,10-12,15,17,18 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,8,10-12,15,17,18 and 21-26 is/are rejected.
- 7) ☒ Claim(s) 8, 10-12, and 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

In the current amendment filed on 2/7/07, claims 1, 8, and 15 are currently amended, claims 2, 6-7, 9, 13-14, 16, and 19-20 are cancelled, claims 3-5, 10-12, and 17-18 remain as originally filed, claims 21-23 remain as previously presented, and new claims 24-26 are currently added. Therefore, only claims 1, 3-5, 8, 10-12, 15, 17-18, and 21-26 are still pending and remain under consideration.

The previous objections to the title and the specification are withdrawn in view of the current amendment.

A new objection of claims 8, 10-12, and 25 is necessitated by the current amendment.

The previous rejection under the first paragraph of 35 USC 112 necessitated by the previous addition of new matter in previously presented claims 21-23 is maintained, as set forth below.

The previous art rejections under 35 USC 102(b), 102(e)/103(a), and 103(a) are re-written below, as necessitated by Applicant's current claim amendments.

Applicant's arguments with respect to claims 1, 3-5, 8, 10-12, 15, 17-18, and 21-26 have been considered, but they are either unpersuasive or moot in view of the revised and new ground(s) of rejection set forth below, as necessitated by the current amendment.

Claim Objections

Claims 8, 10-12, and 25 are objected to because of at least the following informalities: in claim 8 line 9, the word "erforming" is newly misspelled without any markings to show this

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change and must be corrected to --performing--, in order to be compliant with the previous version thereof. Claims 10-12 and 25 depend from claim 8. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 21-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) still contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. These previously presented claims recite that in the independent claims from which they depend (instant claim 21 depends from instant claim 1, instant claim 22 depends from instant claim 8, and instant claim 23 depends from instant claim 23), the etching step and the additional patterning step both attack the substrate, which is not found to be specifically supported in the specification as originally filed.

In the remarks on page 11 of the current amendment, the only original support provided by Applicant for the recitation that the etching step and the additional patterning step both attack the substrate is a broad reference to "Figures 4-6 and the accompanying text". While the etching step of the transparent substrate 110 at region 114 in Figure 4B may be understood to include an attack of the (transparent) substrate, the only "additional patterning" that is specifically described in the specification as originally filed is the removal of an additional area "of the opaque layer 112 to expose a second region 116 of the transparent substrate 110" ([0020] lines 14-15, as

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shown in Figure 5B). The specification does **not** specifically describe any actual “attack” of the underlying transparent substrate during the additional patterning step. Therefore, these additional recitations are still believed to constitute new matter that must be cancelled from the claims in response to this Office action.

Claim Rejections - 35 USC § 102/103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3-5, 15, 17-18, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dao et al. (US 5,302,477), especially in view of Schroeder et al. (US 2003/0027057).

Dao et al. teach an inverted phase-shifted reticle or mask (PSM) having adjacent inverted phase features with PS rims or phase edges between 0° and 180° phase features; and methods of fabricating the PSM (title, abstract). The methods of fabricating the PSM include performing first patterning or etching of an opaque chrome (Cr) mask layer 21 (*instant claims 4 and 18*) formed on a transparent quartz substrate 20 (as shown in Figure 7, *instant claim 5*) to expose a first region of the transparent substrate 20, which is etched to form a PS region 53 first opening (Figure 8, which also corresponds to 24 in Figures 10 and 4A). This is followed by performing additional second patterning or etching of the opaque Cr layer to expose an adjacent second region 27 of the transparent substrate to enlarge the first opening formed in the first region 24 over a continuous area of the transparent quartz substrate (as shown in Figure 4A, which clearly depicts Figure 10 without any Cr at all between the first region 24 and the adjacent second region 27, col. 8 line 46 to col. 9 line 13, *instant claims 3 and 17*). In the PSM shown by Figure 4A, a

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first (etched PS) rectangular region 24 is directly adjacent to a second (unetched non-PS) rectangular region 27, in which both the first rectangular region 24 and the second rectangular region 27 are similarly shaped and sized (col. 5 line 67 to col. 8 line 3). These methods of making a PSM are not limited to making a rim PSM, but these methods are also specifically contemplated to be applicable for making any other PSM pattern having a PS element or region in close proximity to another (e.g., non-PS, etc.) region, as exemplified by the PSM having a (rectangular) PS region 42b and a directly adjacent (rectangular) non-PS region 45a, which are shown in Figure 6 as having similar shapes and sizes (col. 8 lines 1-11).

Dao et al. does not expressly require that the first rectangular region has an uninterrupted rectangular surface lacking an intervening structure.

Schroeder et al. teach a phase shift mask 400 (PSM) and method of manufacturing the PSM (abstract). Figure 6A shows a PSM 400 having a transparent quartz substrate 402 (*instant claim 5*) with a first etched region 458 or 454 for a 180° phase (shift, PS) feature and an adjacent second unetched region 460 or 456 for a 0° phase (non-PS) feature next to an overlying patterned opaque chrome (Cr) layer 404 (paragraphs [0041]-[0047]). In the method of manufacturing the PSM, the opaque layer is preferably formed on the transparent substrate and patterned before etching of the underlying transparent substrate. Alternatively, the opaque layer can be patterned after etching the transparent substrate [0043]. The method for making the PSM in Figure 6A would reasonably be expected (especially in view of the Dao et al. method discussed above) to involve first patterning of an opening in the opaque layer, etching of the underlying transparent substrate at a first region 458 or 454 through the opening in the opaque Cr mask layer (*instant claims 4 and 18*), and additional patterning of the opaque layer to enlarge the opening that forms

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a second adjacent (non-PS) region 460 or 456 so that both PS and non-PS regions are formed over a continuous area of the transparent quartz substrate (*instant claims 3 and 17*). Figure 6B illustrates a top view of the PSM in Figure 6A that shows parallel lines for phase edge 452 between PS 458 and non-PS 460, as well as the adjacent edge of the patterned opaque Cr layer 404. These lines can extend only partially across the length of the mask 400 [0048], which is consistent with a rectangular first region 458 having an uninterrupted surface and an adjacent rectangular second region 460 having a similar shape. Even though the apparent width of non-PS region 460 in Figures 6A and 6B appears to be narrower than the adjacent PS region 458, non-PS region 456 on the other side of adjacent PS region 458 appears to have the same or similar width or size as the adjacent PS region 458. Also, PS region 454 appears to have the same or similar width or size as non-PS region 460.

It would have been obvious to one of ordinary skill in the art at the time of the invention in the method of making a PSM including first patterning of a first rectangular opening or region in an opaque layer and etching of an underlying transparent substrate, then additional patterning of the opaque layer for expanding the first rectangular opening or region, forming a similarly sized and shaped second rectangular opening or region in the opaque layer (as taught by Dao et al.), to make the first rectangular region or opening as an uninterrupted rectangular surface that lacks an intervening structure, because this is a simple alternative PSM configuration that is reasonably encompassed within “any” PSM pattern having a PS element or region in close proximity to another (e.g., non-PS, etc.) region (as contemplated by Dao et al.). This would have been especially obvious in view of the known PSM configuration including an uninterrupted rectangular surface first region lacking an intervening structure and an adjacent rectangular

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second region having a similar shape (as taught by Schroeder et al.), because one of ordinary skill in the art would have a reasonable expectation of success in making this known PSM configuration (as taught by Schroeder et al.) by the method of making a PSM including first patterning of a first rectangular opening or region in an opaque layer and etching of an underlying transparent substrate, then additional patterning of the opaque layer for expanding the first rectangular opening or region, forming a similarly sized and shaped second rectangular opening or region in the opaque layer (as taught by Dao et al., reading on *instant claims 1, 15, 24, and 26*).

Claims 1, 3-5, 15, 17-18, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dao et al. (US 5,302,477), especially in view of Schroeder et al. (US 2003/0027057), and further in view of either Levenson (US 6,251,549), Rolfson (US 6,395,432), or Applicant's admitted prior art (AAPA).

While teaching other aspects of the instant claims, neither Dao et al. nor Schroeder et al. specifically teach a method of forming a PSM having adjacent first and second similarly shaped and sized rectangular 0° non-PS and 180° PS features or regions *in the particular configuration shown by instant Figure 5A or instant Figure 6A* (as specific examples of *instant claims 1, 3-5, 15, 17-18, 24, and 26*).

However, the particular configuration shown by instant Figure 5A or instant Figure 6A (for a PSM having book-matched adjacent first and second similarly shaped and sized rectangular 0° non-PS and 180° PS features or regions, wherein the first rectangular region has an uninterrupted rectangular surface that lacks an intervening structure) is either the same or very similar to the PSM configurations exemplified by either Levenson (Figures 9-11, col. 6 lines 53-

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61), Rolfson (Figure 12, col. 6 lines 28-36), or even AAPA (as shown in instant prior art Figures 1A to 3B, which Applicant admits at [0020] lines 1-5 to have the same PSM structure or configuration as shown by instant Figures 4A to 6B). So, it would have been obvious to one of ordinary skill in the art at the time of the invention in the methods of forming PSMs having adjacent first and second PS regions (as taught by Dao et al., especially in view of Schroeder et al.) to form these adjacent first and second PS regions in a book-matched configuration of similarly shaped and sized rectangular 0° non-PS and 180° PS features or regions, wherein the first rectangular region has an uninterrupted rectangular surface that lacks an intervening structure (as taught by either Levenson, Rolfson, or AAPA as exemplified by instant prior art Figures 1A to 3B), which has the same PSM structure exemplified by instant Figures 5A or 6A, in order to achieve a corresponding desired imaged pattern through such a PSM (*instant claims 1, 3-5, 15, 17-18, 24, and 26*).

Claims 8, 10-12, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dao et al. (US 5,302,477), especially in view of Schroeder et al. (US 2003/0027057), and further in view of Tzu et al. (US 5,888,678).

While teaching other aspects of the instant claims, neither Dao et al. nor Schroeder et al. specifically teach forming additional third regions that are devoid of PS features (*instant claims 8, 10-12, and 25*).

Tzu et al. teach a PSM having separate PS mask patterns and non-PS binary mask patterns on the same mask substrate, as well as a method of forming this PSM (title, abstract). Formation of the PS mask patterns and binary mask patterns on the same transparent mask

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substrate increases throughput and decreases cost in the fabrication of integrated circuit wafers (abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention in the methods of forming PSMs having adjacent rectangular first and second PS regions that are similarly shaped and sized, wherein the first rectangular region has an uninterrupted rectangular surface that lacks an intervening structure (as taught by Dao et al., especially in view of Schroeder et al.) to form additional third binary mask pattern regions that are devoid of PS features on the same transparent mask substrate, in order to increase throughput and decrease cost in the fabrication of integrated circuit wafers (as taught by Tzu et al., *instant claims 8, 10-12, and 25*).

Claims 8, 10-12, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dao et al. (US 5,302,477), especially in view of Schroeder et al. (US 2003/0027057), further in view of Tzu et al. (US 5,888,678), and further in view of either Levenson (US 6,251,549), Rolfson (US 6,395,432), or Applicant's admitted prior art (AAPA).

While teaching other aspects of the instant claims, none of Dao et al., Schroeder et al., nor Tzu et al. specifically teach a method of forming a PSM having adjacent first and second similarly shaped and sized rectangular 0° non-PS and 180° PS features or regions, wherein the first rectangular region has an uninterrupted rectangular surface that lacks an intervening structure, *in the particular configuration shown by instant Figure 5A or instant Figure 6A* (as specific examples of *instant claims 8, 10-12, and 25*).

However, the particular configuration shown by instant Figure 5A or instant Figure 6A (for a PSM having book-matched adjacent first and second similarly shaped and sized

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rectangular 0° non-PS and 180° PS features or regions, wherein the first rectangular region has an uninterrupted rectangular surface that lacks an intervening structure) is either the same or very similar to the PSM configurations exemplified by either Levenson, Rolfson, or AAPA (as discussed above). So, it would have been obvious to one of ordinary skill in the art at the time of the invention in the methods of forming PSMs having adjacent first and second PS regions, wherein the first region has an uninterrupted rectangular surface that lacks an intervening structure, and separate additional third binary mask pattern regions that are devoid of PS features on the same transparent mask substrate (as taught by Dao et al., especially in view of Schroeder et al., in combination with Tzu et al.) to form the adjacent first and second PS regions in a book-matched configuration of similarly shaped and sized rectangular 0° non-PS and 180° PS features or regions (as taught by either Levenson, Rolfson, or AAPA as exemplified by instant prior art Figures 1A to 3B), which has the same PSM structure exemplified by instant Figures 5A or 6A, in order to achieve a corresponding desired imaged pattern through such a PSM (*instant claims 8, 10-12, and 25*).

Claims 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dao et al. (US 5,302,477), especially in view of Schroeder et al. (US 2003/0027057), further in view of either Levenson (US 6,251,549), Rolfson (US 6,395,432), or Applicant's admitted prior art (AAPA), and further in view of Sandstrom (US 2002/0125443).

While teaching other aspects of the instant claims, neither Dao et al., Schroeder et al., Levenson, Rolfson, nor AAPA specifically teach a method of forming a PSM in which the etching of a first PS region and the subsequent additional patterning of an adjacent second non-PS region both attack the substrate of the PSM (*instant claims 21 and 23*).

Sandstrom teaches methods of making PSMs (title, abstract). Figure 3D shows a latter process step for making a PSM having a top non-transmitting/opaque region 302 (of one or more layers, on the left), which is directly adjacent to a first PS window/region 325 (etched into the substrate 100) that is deeper than another directly adjacent subsequently additionally patterned (etched) second non-PS window/region 327 (on the right) [0075]. The patterned non-transmissive/opaque material is typically Cr [0065]. Thus, the first etching step to pattern the PS region 325 and the subsequent additional patterning by etching to form the second region 327 both attack the substrate of the PSM (*instant claims 21 and 23*). Further etching during the additional patterning of the PSM substrate is useful for improving uniformity [0074].

It would have been obvious to one of ordinary skill in the art at the time of the invention in the method of forming a PSM having a first etched PS region and an adjacent second additionally patterned transmissive region enlarging a patterned opening in an opaque layer, such that the adjacent first and second regions are in a book-matched configuration of similarly shaped and sized rectangular PS and non-PS regions, wherein the first rectangular region has an uninterrupted rectangular surface that lacks an intervening structure (as taught by Dao et al., especially in view of Schroeder et al., in combination with either Levenson, Rolfson, or AAPA, which are discussed above) to have further attacked or etched the PSM substrate during the additional patterning step, because this further etching during additional patterning of the PSM substrate is useful for improving uniformity (as taught by Sandstrom, *instant claims 21 and 23*).

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dao et al. (US 5,302,477), especially in view of Schroeder et al. (US 2003/0027057), further in view of Tzu et

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al. (US 5,888,678), further in view of either Levenson (US 6,251,549), Rolfson (US 6,395,432), or Applicant's admitted prior art (AAPA), and further in view of Sandstrom (US 2002/0125443).

The teachings of Sandstrom are discussed above.

It would have been obvious to one of ordinary skill in the art at the time of the invention in the method of forming a PSM having first etched PS regions and adjacent second additionally patterned transmissive regions enlarging patterned openings in an opaque layer, such that the adjacent first and second regions are in book-matched configurations of similarly shaped and sized rectangular PS and non-PS regions, wherein the first rectangular regions each have an uninterrupted rectangular surface that lacks an intervening structure (as taught by Dao et al., especially in view of Schroeder et al., in combination with Tzu et al. and either Levenson, Rolfson, or AAPA, which are discussed above) to have further attacked or etched the PSM substrate during the additional patterning step, because this further etching during additional patterning of the PSM substrate is useful for improving uniformity (as taught by Sandstrom, *instant claim 22*).

Response to Arguments

Applicant's arguments with respect to claims 1, 3-5, 8, 10-12, 15, 17-18, and 21-26 have been considered, but they are either unpersuasive or moot in view of the revised and new ground(s) of rejection set forth above, as necessitated by the current amendment.

In response to Applicant's arguments on pages 17-25 that Levenson, Rolfson, and Tzu et al. each teach(es) *simultaneously* forming the first and second regions of a PSM, which Applicant's contend teach away from the methods of separately forming the first and second regions of the PSM (as taught by Dao et al., especially in view of Schroeder et al., discussed

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above), the test for obviousness is not whether the features (or methods) of a secondary reference may be bodily incorporated into the structure or method of one or more primary references; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

As set forth above, it would have been obvious in the method of making a PSM taught by Dao et al. that includes separately forming the first and second rectangular regions in the opaque layer, forming similarly sized and shaped first and second rectangular openings in the opaque layer, to make the first rectangular region or opening as an uninterrupted rectangular surface that lacks an intervening structure, because this is a simple alternative PSM configuration that is reasonably encompassed within “any” PSM pattern having a PS element or region in close proximity to another (e.g., non-PS, etc.) region (as contemplated by Dao et al.). Also, this would have been especially obvious in view of the known PSM configuration including an uninterrupted rectangular surface first region lacking an intervening structure and an adjacent rectangular second region having a similar shape (as taught by Schroeder et al.), because one of ordinary skill in the art would have a reasonable expectation of success in making this known PSM configuration (as taught by Schroeder et al.) by the method contemplated by Dao et al. to be suitable for making “any” PSM pattern having a PS element or region in close proximity to another (e.g., non-PS, etc.) region.

In response to Applicant's arguments on pages 17-25 that Levenson, Rolfson, and Tzu et al. each teach(es) away from the methods of separately forming the first and second regions of the PSM (as taught by Dao et al., especially in view of Schroeder et al., discussed above), the

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fact that Applicant may have recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

In response to Applicant's arguments on pages 17-25 that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation for combining the secondary references with Dao et al., especially in view of Schroeder et al., is found at least in Dao et al. (as discussed above).

On page 19 in the last paragraph, Applicant asserts that instant Figures 5A and 6A do not disclose prior art structures. However, instant Figure 3A is clearly labeled to be prior art and a comparison of instant prior art Figure 3A to those of instant Figures 5A and 6A clearly shows that all three of these drawings have the same PSM configuration of book-matched adjacent first and second similarly shaped and sized rectangular 0° non-PS and 180° PS features or regions, wherein the first rectangular region has an uninterrupted rectangular surface that lacks an intervening structure. Furthermore, Applicant admits at [0020] lines 1-5 that instant prior art Figures 1A to 3B have the same PSM structure (or configuration) as shown by instant Figures

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4A to 6B (as previously pointed out). This also provides adequate response to similar assertions on pages 23.

In response to Applicant's arguments on pages 20-22 against the Tzu et al. reference alone and on pages 23-24 against the Sandstrom reference alone, one cannot show nonobviousness by attacking a reference individually where the rejections relying upon each of these references are based on combinations of each reference with one or more other references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The reasons for combining each of Tzu et al. and Sandstrom with other reference(s) have been previously stated and are again set forth above. Tzu et al. teach that forming additional third binary mask pattern regions that are devoid of PS features on the same transparent mask substrate having PS features increases throughput and decreases cost in the fabrication of integrated circuit wafers. Sandstrom teaches plural etching steps that attack the substrate to make a PSM and that further etching during the additional patterning of the PSM substrate is useful for improving uniformity. Neither Tzu et al. nor Sandstrom is relied upon to teach the additional aspects that are taught by other applicable reference(s).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

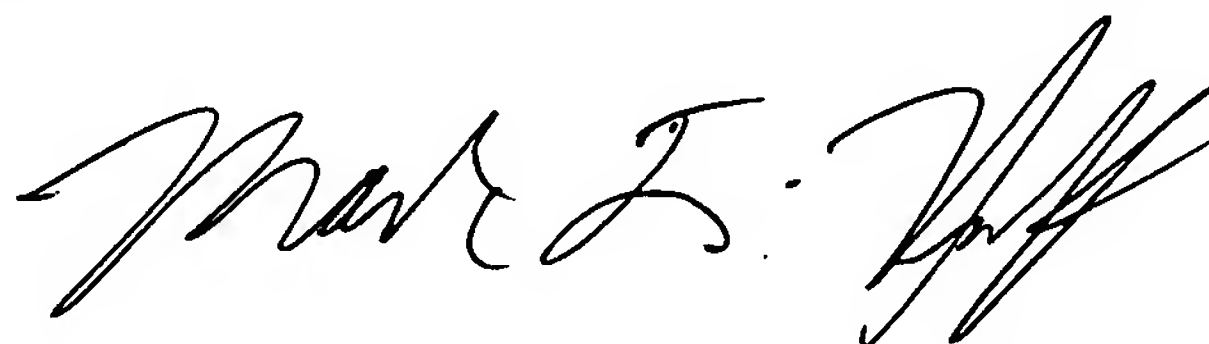
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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Ruggles whose telephone number is 571-272-1390. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



jsr

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SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700